

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Craig H. Barratt & William J. McFarland  
Assignee: Atheros Communications, Inc.  
Title: Apparatus And Method For Transmission Collision  
Avoidance  
Serial No.: 10/760,024 File Date: January 15, 2004  
Examiner: Hicham B. Foud Art Unit: 2619  
Docket No.: ATH-0116

June 25, 2008

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

## APPEAL BRIEF

This Appeal Brief is in support of the Notice of Appeal dated April 21, 2008.

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**I. REAL PARTY IN INTEREST**

The real party in interest is the assignee, Atheros Communications, Inc., pursuant to the Assignment recorded in the U.S. Patent and Trademark Office on January 15, 2004 on Reel 014915, Frame 0038.

**II. RELATED APPEALS AND INTERFERENCES**

Based on information and belief, there are no other appeals or interferences that could directly affect or be directly affected by or have a bearing on the decision by the Board of Patent Appeals in the pending appeal.

**III. STATUS OF CLAIMS**

Claims 1-49, 51-52, 54-56, 58-60, and 62-67 are cancelled. Claims 50, 53, 57, and 61 are pending. Claims 50, 53, 57, and 61 stand rejected.

In the present paper, rejected Claims 50, 53, 57, and 61 are appealed.

Pending Claims 50, 53, 57, and 61 are listed in the Claims Appendix.

**IV. STATUS OF AMENDMENTS**

All claim amendments have been entered.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

A concise explanation of the subject matter defined in each of the independent claims involved in the appeal (i.e. Claims 50, 53, 57, and 60) is provided below. This concise explanation provides exemplary, non-limiting references to the specification by paragraph, page, and line numbers, and to the drawings, if any, by reference numbers/characters.

**Claim 50.** A method of minimizing collisions in a CSMA/CA wireless data communication system using an access point, the method comprising:

sensing the presence of a client desirous of communication with the access point **[FIG. 1: 120, 130, 140; Specification: paragraph 0023 (page 5, lines 2-6), paragraph 0029 (page 6, lines 11-27);**

allocating a start time slot list having at least one unique start time slot during which the client may begin transmitting **[Specification: paragraph 0011 (page 2, lines 23-27), paragraph 0029 (page 6, lines 11-27)];**

transmitting the start time slot list to the client **[Specification: paragraph 0011 (page 2, lines 23-27), paragraph 0030 (page 6, line 28 to page 7, line 4)];** and

receiving a transmission from the client, the transmission beginning only during the start time slot(s) indicated by the start time slot list **[Specification: paragraph 0011 (page 2, lines 23-27), paragraph 0030 (page 6, line 28 to page 7, line 4)],**

wherein allocating includes:

assigning at least one pair of a high-priority start time slot and a low-priority start time slot substantially equally displaced in time from a center start time slot **[FIG. 4: 420,**

**422H, 424L, 410; Specification: paragraph 0014 (page 3, lines 15-20), paragraph 0027 (page 6, lines 1-5), paragraph 0028 (page 6, lines 6-10)].**

**Claim 53.** A method of minimizing collisions in a CSMA/CA wireless data communication system using an access point, the method comprising:

sensing the presence of a client desirous of communication with the access point **[FIG. 1: 120, 130, 140; Specification: paragraph 0023 (page 5, lines 2-6), paragraph 0029 (page 6, lines 11-27);**

allocating a start time slot list having at least one unique start time slot during which the client may begin transmitting **[Specification: paragraph 0011 (page 2, lines 23-27), paragraph 0029 (page 6, lines 11-27)];**

transmitting the start time slot list to the client **[Specification: paragraph 0011 (page 2, lines 23-27), paragraph 0030 (page 6, line 28 to page 7, line 4)];** and

receiving a transmission from the client, the transmission beginning only during the start time slot(s) indicated by the start time slot list **[Specification: paragraph 0011 (page 2, lines 23-27), paragraph 0030 (page 6, line 28 to page 7, line 4)],**

wherein the start time slot list includes a high-priority time slot and a low-priority time slot substantially equally displaced in time from a center time slot **[FIG. 4: 420, 422H, 424L, 410; Specification: paragraph 0014 (page 3, lines 15-20), paragraph 0027 (page 6, lines 1-5), paragraph 0028 (page 6, lines 6-10)].**

**Claim 61.** An access point that minimizes collisions in a CSMA/CA wireless data communication system, the access point comprising:

    a client sensor for detecting the presence of a client desirous of communication with the access point **[FIG. 5: 530; Specification: paragraph 0029 (page 6, lines 11-27)]**;

    a start time slot allocator for allocating a start time slot list having one or more unique start time slots during which the client may begin to transmit **[FIG. 5: 560, 570; Specification: paragraph 0029 (page 6, lines 11-27)]**;

    an access point transmitter for transmitting the start time slot list to a client receiver **[FIG. 5: 520; Specification: paragraph 0029 (page 6, lines 11-27)]**; and

    an access point receiver for receiving a transmission from the client, the transmission being received only during the start time slot(s) indicated by the start time slot list **[FIG. 5: 510; Specification: paragraph 0029 (page 6, lines 11-27)]**,

    wherein the start time slot allocator comprises:

        a start time slot generator for generating at least one pair of a high-priority time slot and a low-priority start time slot, the high-priority time slot and the low-priority start time slot substantially equally displaced in time from a center start time slot **[FIG. 5: 560; Specification: paragraph 0029 (page 6, lines 11-27); FIG. 4: 420, 422H, 424L, 410; Specification: paragraph 0014 (page 3, lines 15-20), paragraph 0027 (page 6, lines 1-5), paragraph 0028 (page 6, lines 6-10)]**.

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following issues are presented to the Board of Appeals for decision:

(A) Whether Claims 50, 53, 57, and 61 are patentable under 35 U.S.C. 103(a) over U.S. Patent 6,963,549 (Jayaraman) in view of U.S. Patent 7,206,320 (Iwamura) and JP 11261518 (JP 518).

**VII. ARGUMENTS**

**A. Claims 50, 53, 57, and 61 are patentable under 35 U.S.C. 103(a) over U.S. Patent 6,963,549 (Jayaraman) in view of U.S. Patent 7,206,320 (Iwamura) and JP 11261518 (JP 518).**

**1. Jayaraman: Overview**

Jayaraman teaches that a central authority selectively reserves a time slot for transmitting from a local station and then prevents other local stations from transmitting during the time slot. Col. 1, lines 60-64. In one embodiment, the central authority and a requesting station can negotiate the duration of the reserved time slot. Col. 5, lines 5-9.

**2. Iwamura: Overview**

Iwamura teaches that transmission can be prioritized to one of three priority levels: highest priority (e.g. VoIP), middle priority (e.g. A/V transmission), and lowest priority (e.g. data transfer and web access). Col. 10, lines 55-65. During arbitration for a time slot, transmissions having higher priority win out over transmissions of lower priority. Col. 11, lines 2-4. When multiple transmitters send requests with the

same priority, each transmitter enters a random back-off mode. Col. 11, lines 48-53.

### **3. JP 518: Overview**

Time slots are sequentially assigned to each radio terminal by a control channel (10) in a space between time slots for uplink circuit (11) and time slots for downlink circuits (12) of a TDMA frame (8) arranged in succession from the center of continuous time slots. Translated NOVELTY section.

### **4. Limitations recited in Claims 50, 53, 57, and 61 are not taught by the combination of Jayaraman, Iwamura, and JP 518.**

Claim 50 recites (emphasis added):

A method of minimizing collisions in a CSMA/CA wireless data communication system using an access point, the method comprising:

sensing the presence of a client desirous of communication with the access point;

allocating a start time slot list having at least one unique start time slot during which the client may begin transmitting;

transmitting the start time slot list to the client; and

receiving a transmission from the client, the transmission beginning only during the start time slot(s) indicated by the start time slot list,

wherein allocating includes:

**assigning at least one pair of a high-priority start time slot and a low-priority start time slot substantially equally displaced in time from a center start time slot.**

Appellant respectfully submits that Jayaraman, Iwamura, and JP518, even when combined, fail to disclose or suggest the recited assigning. The Examiner admits that Jayaraman teaches nothing about a pair of time slots, wherein the pair includes a high-priority start time slot and a low-priority start time slot.

To remedy this deficiency of Jayaraman, the Examiner cites Iwamura. Specifically, the Examiner cites col. 11, lines 2-4 of Iwamura as teaching assigning at least one pair of a high-priority start time slot and a low-priority start time slot substantially equally displaced in time from a center start time slot. Appellant respectfully traverses this characterization. In this passage, Iwamura merely teaches that during arbitration for a time slot, transmissions having higher priority win over transmission of lower priority. Thus, this passage has nothing to do with **assigning the recited pair of high-priority and low-priority slots**. Therefore, Iwamura does not remedy the deficiency of Jayaraman with respect to the recited pair of time slots, wherein the pair includes a high-priority start time slot and a low-priority start time slot.

Noting that Iwamura teaches nothing about the pair of slots being substantially equally displaced in time from a center start time slot, the Examiner cites JP518 to remedy this deficiency of Iwamura. JP518, as much as can be understood by the translated abstract and drawings, also does not teach the recited assigning. Specifically, it appears that JP518 divides the time slots for uplink (U) and downlink (D) circuits. For example, in FIG. 1, a plurality of uplink time slots 1-N are assigned, which are followed by a plurality of downlink time slots 1-M. Notably, **time slots for uplink/downlink circuits do not suggest high-priority/low-priority time slots**. Thus, the abstract of JP518 teaches nothing about a pair of time slots, wherein the pair includes **a high-priority start time slot and a low-priority start time slot**. Moreover, note that JP518 teaches that the width between corresponding downlink/uplink time slots remains substantially equal (see FIG. 1 and Abstract (i.e. "mutual intervals between allocated time slots become relatively equal") of JP518). Therefore, JP518 also teaches nothing about

the slots being equally displaced in time from a center start time slot (see, e.g. FIG. 4).

In the Advisory Action, the Examiner cites FIG. 12 of Iwamura as teaching the recited pair of time slots and their spacing. Appellant traverses this characterization. Iwamura teaches that for the highest priority stream, the transmitter sends its request at the beginning portion 172 of the arbitration period T2. Col. 11, lines 9-11. If the stream has the next level of priority, then the transmitter sends its request after the highest priority request is sent. Col. 11, lines 11-13. Finally, for the lowest priority stream, the transmitter sends its request at the last portion of the arbitration period. Col. 11, lines 13-14. Thus, depending on the stream to be transmitted, Iwamura assigns **one** time slot. Therefore, FIG. 12 of Iwamura does not teach assigning at least one pair of time slots (high-priority and low-priority) and displacement from a center start time slot.

In the Advisory Action, the Examiner also states that the term "substantially" recited in the claims "can be any amount". Appellant traverses this characterization. The Federal Circuit has stated that, "Expressions such as 'substantially' are used in patent documents when warranted by the nature of the invention, in order to accommodate the minor variations that may be appropriate to secure the invention. Such usage ... may be necessary in order to provide the inventor with the benefit of his invention ... the term "substantially" is a descriptive term commonly used in patent claims to "avoid a strict numerical boundary to the specified parameter,"' quoting *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1217, 36 USPQ2d 1225, 1229 (Fed. Cir. 1995)". *Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 65 USPQ2d 1051 (Fed. Cir. 2002). Appellant submits that a start time slot "substantially equally displaced in time

from a center time slot" accommodates minor variations in time while ensuring the inventors have the benefit of their invention.

Because the cited references, even when combined, fail to disclose or suggest **assigning at least one pair of a high-priority start time slot and a low-priority start time slot substantially equally displaced in time from a center start time slot**, Appellant respectfully requests reconsideration and withdrawal of the rejection of Claim 50.

Claim 53 recites (emphasis added):

A method of minimizing collisions in a CSMA/CA wireless data communication system using an access point, the method comprising:

sensing the presence of a client desirous of communication with the access point;

allocating a start time slot list having at least one unique start time slot during which the client may begin transmitting;

transmitting the start time slot list to the client; and

receiving a transmission from the client, the transmission beginning only during the start time slot(s) indicated by the start time slot list,

**wherein the start time slot list includes a high-priority time slot and a low-priority time slot substantially equally displaced in time from a center time slot.**

Therefore, Claim 53 is patentable for substantially the same reasons presented for Claim 50. Based on those reasons, Appellant requests reconsideration and withdrawal of the rejection of Claim 53.

Claim 57 depends from Claim 53 and therefore is patentable for at least the reasons presented for Claim 53. Based on those reasons, Appellant requests reconsideration and withdrawal of the rejection of Claim 57.

Claim 61 recites (emphasis added):

An access point that minimizes collisions in a CSMA/CA wireless data communication system, the access point comprising:

a client sensor for detecting the presence of a client desirous of communication with the access point;

a start time slot allocator for allocating a start time slot list having one or more unique start time slots during which the client may begin to transmit;

an access point transmitter for transmitting the start time slot list to a client receiver; and

an access point receiver for receiving a transmission from the client, the transmission being received only during the start time slot(s) indicated by the start time slot list,

wherein the start time slot allocator comprises:

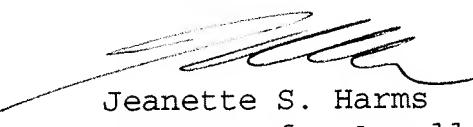
**a start time slot generator for generating at least one pair of a high-priority time slot and a low-priority start time slot, the high-priority time slot and the low-priority start time slot substantially equally displaced in time from a center start time slot.**

Therefore, Claim 61 is patentable for substantially the same reasons presented for Claim 50. Based on those reasons, Appellant requests reconsideration and withdrawal of the rejection of Claim 61.

#### **B. CONCLUSION**

For the foregoing reasons, it is submitted that the Examiner's rejections of Claims 50, 53, 57, and 61 are erroneous, and reversal of these rejections is respectfully requested.

Respectfully submitted,



Jeanette S. Harms  
Attorney for Appellant  
Reg. No. 35,537

Customer No.: 30547

Telephone: 408-451-5907  
Facsimile: 408-451-5908

VIII. CLAIMS APPENDIX

1-49. (Cancelled)

50. (Previously Presented) A method of minimizing collisions in a CSMA/CA wireless data communication system using an access point, the method comprising:

sensing the presence of a client desirous of communication with the access point;

allocating a start time slot list having at least one unique start time slot during which the client may begin transmitting;

transmitting the start time slot list to the client; and

receiving a transmission from the client, the transmission beginning only during the start time slot(s) indicated by the start time slot list,

wherein allocating includes:

assigning at least one pair of a high-priority start time slot and a low-priority start time slot substantially equally displaced in time from a center start time slot.

51-52. (Cancelled)

53. (Previously Presented) A method of minimizing collisions in a CSMA/CA wireless data communication system using an access point, the method comprising:

sensing the presence of a client desirous of communication with the access point;

allocating a start time slot list having at least one unique start time slot during which the client may begin transmitting;

transmitting the start time slot list to the client; and

receiving a transmission from the client, the transmission beginning only during the start time slot(s) indicated by the start time slot list,

wherein the start time slot list includes a high-priority time slot and a low-priority time slot substantially equally displaced in time from a center time slot.

54-56. (Cancelled)

57. (Previously Presented) A client capable of receiving the start time slot list of claim 53, the client selecting between the high-priority start time slot and the low-priority start time slot based on a randomizing function.

58-60. (Cancelled)

61. (Previously Presented) An access point that minimizes collisions in a CSMA/CA wireless data communication system, the access point comprising:

a client sensor for detecting the presence of a client desirous of communication with the access point;

a start time slot allocator for allocating a start time slot list having one or more unique start time slots during which the client may begin to transmit;

an access point transmitter for transmitting the start time slot list to a client receiver; and

an access point receiver for receiving a transmission from the client, the transmission being received only during the start time slot(s) indicated by the start time slot list,

wherein the start time slot allocator comprises:

a start time slot generator for generating at least one pair of a high-priority time slot and a low-priority start time

slot, the high-priority time slot and the low-priority start time slot substantially equally displaced in time from a center start time slot.

62-67. (Cancelled)

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.